



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

VOLUME XX

JANUARY, 1913

NUMBER 1

THE  
AMERICAN  
MATHEMATICAL MONTHLY

FOUNDED BY BENJAMIN F. FINKEL

A JOURNAL FOR TEACHERS OF MATHEMATICS IN THE  
COLLEGIATE AND ADVANCED SECONDARY FIELDS

---

PUBLISHED WITH THE COOPERATION OF

THE UNIVERSITIES OF CHICAGO, ILLINOIS, INDIANA, IOWA,  
KANSAS, MICHIGAN, MINNESOTA, MISSOURI, NEBRASKA;  
COLORADO COLLEGE AND OBERLIN COLLEGE

---

CONTROLLED AND EDITED BY

C. H. ASHTON	W. DEW. CAIRNS	E. R. HEDRICK
R. P. BAKER	FLORIAN CAJORI	L. C. KARPINSKI
W. C. BRENKE	R. D. CARMICHAEL	G. A. MILLER
W. H. BUSSEY	B. F. FINKEL	H. E. SLAUGHT

---

EDITORIAL COMMITTEE: H. E. SLAUGHT, G. A. MILLER, E. R. HEDRICK

EXECUTIVE COMMITTEE: H. E. SLAUGHT, W. C. BRENKE, R. D. CARMICHAEL

OFFICIAL CORRESPONDENCE should be addressed to the MANAGING EDITOR,  
H. E. SLAUGHT, 5548 Monroe Avenue, Chicago, Ill.

---

PUBLISHED MONTHLY EXCEPT IN JULY AND AUGUST

LANCASTER, PA., AND CHICAGO

Entered at the Post Office at Lancaster, Pa., as Second Class Matter

## CONTENTS

Foreword on Behalf of the Editors. By E. R. HEDRICK .....	1- 5
History of the Logarithmic and Exponential Concepts. By FLORIAN CAJORI	5-14
Errors in the Literature on Groups of Finite Order. By G. A. MILLER.....	14-20
The Remainder Term in a Certain Development of $f(a+x)$ . By R. D. CARMICHAEL	20-25
Two New Books on the Calculus. By W. H. BUSSEY.....	26-30
NOTES AND NEWS .....	31-34

---

**TERMS:** Two dollars per year in advance. Fifty cents additional for delivery in Foreign Countries.

**SUBSCRIPTIONS** should be made payable to THE AMERICAN MATHEMATICAL MONTHLY, and sent to the TREASURER, B. F. FINKEL, Springfield, Missouri.

**FOREIGN AGENTS:** Z. P. Maruya & Co., Ltd., Tokyo, Japan.

A. Hermann, 8 Rue de la Sorbonne, Paris, France.

---

# THE HAWKES, LUBY AND TOUTON ALGEBRAS

---

They are rational, interesting, attractive.

They succeed where other books fail, because they are the result of everyday class room experience.

They relieve the teacher of those things for which a textbook should be responsible.

They place emphasis on principles—they are not faddish.

Used in about 1900 schools.

Used in 34 of the 100 largest cities of the country.

---

---

*Write for further description.*

**GINN & COMPANY, Publishers**

BOSTON  
ATLANTA

NEW YORK  
DALLAS

CHICAGO  
COLUMBUS

LONDON  
SAN FRANCISCO

THE  
AMERICAN  
MATHEMATICAL MONTHLY

FOUNDED BY BENJAMIN F. FINKEL

A JOURNAL FOR TEACHERS OF MATHEMATICS IN THE  
COLLEGIATE AND ADVANCED SECONDARY FIELDS

---

PUBLISHED WITH THE COÖPERATION OF  
THE UNIVERSITIES OF CHICAGO, ILLINOIS, INDIANA, IOWA,  
KANSAS, MICHIGAN, MINNESOTA, MISSOURI, NEBRASKA,  
NORTHWESTERN UNIVERSITY,  
COLORADO COLLEGE AND OBERLIN COLLEGE

---

CONTROLLED AND EDITED BY

C. H. ASHTON	W. DEW. CAIRNS	B. F. FINKEL
R. P. BAKER	FLORIAN CAJORI	E. R. HEDRICK
W. C. BRENKE	R. D. CARMICHAEL	L. C. KARPINSKI
W. H. BUSSEY	D. R. CURTISS	G. A. MILLER
	H. E. SLAUGHT	

---

VOLUME XX  
JANUARY-DECEMBER, 1913

---

PUBLISHED MONTHLY EXCEPT IN JULY AND AUGUST

LANCASTER, PA., AND CHICAGO

Entered at the Post Office at Lancaster, Pa., as Second Class Matter

PRESS OF  
THE NEW ERA PRINTING COMPANY  
LANCASTER, PA.

## ANNOUNCEMENT

With this issue the AMERICAN MATHEMATICAL MONTHLY passes into the control of an Editorial Board consisting of representatives of eleven supporting institutions, together with B. F. FINKEL, founder of the MONTHLY and editor since its inception in 1894.

It will be the editorial policy of the MONTHLY to appeal especially to teachers of mathematics in the collegiate and advanced secondary fields, not only for the purpose of directing attention to questions of improvement in teaching in these fields, but also to foster the development of the scientific spirit among large numbers who are not now reached by the more technical journals. The MONTHLY will continue to publish original articles, but increased attention will be given to pedagogical and historical questions of interest and value to teachers of collegiate mathematics.

The constituency of such a journal should include:

- 1) All teachers of the advanced courses in secondary schools, especially those which offer trigonometry, college algebra, and analytic geometry.
- 2) All teachers of undergraduate courses in mathematics in colleges, universities, and engineering schools.
- 3) University professors of mathematics who wish to keep in touch with pedagogical movements in the collegiate field.
- 4) Graduate students in mathematics who wish to profit by historical and pedagogical discussions among teachers of experience.
- 5) All productive workers in mathematics who may occasionally desire a place of publication for articles of minimum technical difficulty suitable for the promotion of scientific interest among the average mathematical readers.
- 6) All who are interested in the proposal and solution of problems, especially those who seek assistance from co-workers with respect to actual difficulties encountered in the prosecution of research.

The need of a standard journal with such aims, in a field otherwise unoccupied in this country, will not be questioned. But its ultimate success will depend upon its speedily becoming self-supporting. This can happen only if the individuals who should form its constituency become subscribers in large numbers. In order to make this possible the subscription price will remain only *\$2.00 per year in advance*.

This copy of the MONTHLY is sent to all present subscribers, and also to a selected list of persons who, it is believed, will desire to become subscribers. The mailing list for the February issue will consist of those whose subscriptions, or renewals, are received by the Treasurer before the February number goes to press.

**PLEASE FILL OUT THE ACCOMPANYING SUBSCRIPTION BLANK AND MAIL IT NOW**

## ORGANIZATION OF THE EDITORIAL BOARD

The Board of Editors of the *MONTHLY* is organized under Articles of Agreement in accordance with which the officers and the editorial and executive committees are elected by majority vote of all the members, the other committees being selected by the managing editor.

The names of the officers and committee members are given in this issue in the various departments, and they are here collected for convenient reference.

*Managing Editor:* H. E. SLAUGHT.

*Treasurer:* B. F. FINKEL.

*Editorial Committee:* H. E. SLAUGHT, E. R. HEDRICK, G. A. MILLER.

*Executive Committee:* H. E. SLAUGHT, W. C. BRENKE, R. D. CARMICHAEL.

*Committee on Book Reviews:* W. H. BUSSEY, C. H. ASHTON, W. C. BRENKE, L. C. KARPINSKI.

*Committee on Problems and Questions:* B. F. FINKEL, R. D. CARMICHAEL, R. P. BAKER.

*Committee on Notes and News:* FLORIAN CAJORI, W. H. BUSSEY, W. DEW. CAIRNS, G. A. MILLER.

The members of these committees will welcome suggestions and criticisms from all sources, especially from those who are interested in helping the *MONTHLY* to realize its ideals.

The regular edition of the *MONTHLY*, as at present planned, is to contain thirty-two pages and cover. The present number is somewhat larger.

It is intended to go to press on the fifteenth of the month, as nearly as possible. The delay in this issue was unavoidable on account of the many adjustments incident to the reorganization.

The annual volume will consist of ten numbers, none being issued in the months of July and August.